Claims

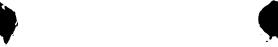
	1 1.	An accelerometer, comprising:
	2	a measurement mass for detecting acceleration, including a housing
	3	having a cavity, a spring mass assembly positioned within the
	4	cavity, and one or more metal electrode patterns coupled to the
	5	spring mass assembly;
	6	a top cap wafer coupled to the measurement mass, including a top
	7	capacitor electrode, a top cap balanced metal pattern, a top cap
	8	press frame recess, and top cap overshock bumpers; and
ā	9	a bottom cap wafer coupled to the measurement mass, including a
<u>.</u>	10	bottom capacitor electrode, a bottom cap balanced metal pattern,
yı M	11	a bottom cap press frame recess, and bottom cap overshock
	12	bumpers.
<u></u> 1	1 2.	An accelerometer, comprising:
l 1	2	a measurement mass for detecting acceleration, including a housing
	3	having a cavity, a spring mass assembly positioned within the
¥	4	cavity, one or more metal electrode patterns coupled to the
	5	spring mass assembly, and one or more passages for venting air
	6	from the cavity in the housing.;
	7	a top cap wafer coupled to the measurement mass, including a top
	8	capacitor electrode, a top cap balanced metal pattern, a top cap
	9	press frame recess, and top cap overshock bumpers;
	10	a bottom cap wafer coupled to the measurement mass, including a bottom
	11	capacitor electrode, a bottom cap balanced metal pattern,
	12	a bottom cap press frame recess, and bottom cap overshock
	13	bumpers.

1	3.	A method of fabricating an accelerometer, comprising:
2		fabricating a measurement mass for detecting acceleration that includes a
3		housing having a cavity, and a spring mass assembly positioned
4		within the cavity;
5		fabricating a top cap wafer;
6		fabricating a bottom cap wafer;
7		vertically stacking the measurement mass, the top cap wafer, and the
8		bottom cap wafer in an approximately parallel manner;
9		bonding the top cap waffer to a side of the measurement mass using a
10		bonding process;
11		bonding the bottom cap wafer to another side of the measurement mass
12		using the bonding process; and
13		making one or more dicing cuts at predetermined locations on the
14		accelerometer.
1	4.	A method of bonding an accelerometer, comprising:
2		fabricating a measurement mass that includes a housing having a
3		cavity, a spring mass assembly positioned within the cavity, and
4		one or more bond rings coupled to the housing;
5		fabricating a top cap wafer that includes a top bond ring and a top
6		cap press frame recess;
7		fabricating a bottom cap wafer that includes a bottom bond ring
8		and a bottom cap press frame recess;
9		vertically stacking the measurement mass, the top cap wafer, and the
10		bottom cap wafer in an approximately parallel manner;
11		bonding the top cap wafer to a side of the measurement mass using a
12		bonding process; and
13		bonding the bottom cap wafer to another side of the measurement mass
14		using the bonding process.
1	5 .	A method of shaping a wafer to create components for a sensor,
2		comprising:

	3		applying an etch-masking layer and an etch-stop layer to the water;
	4		patterning the etch-masking layer to create an area of exposure in the
	5		etch-masking layer;
	6		applying one or more etching agents to the area of exposure to remove
	7		the etch-masking layer within the area of exposure;
	8		applying one or more etching agents to the area exposure to shape the
	9		wafer into a housing, a measurement mass, and one or more
	10		springs down to the etch-stop layer; and
	11		maintaining the etch-stop layer on the springs.
			lacksquare
	1	6.	A sensor, comprising:
D n	2		a measurement mass assembly including a housing, a measurement
T.	3		mass including one entrodes, and a plurality of springs
	4		for coupling the measurement mass to the housing;
	5		a top cap wafer coupled to the measurement mass assembly including a
	6		top cap overshock bumper pattern designed to reduce
# # #	7		stiction within the sensor; and
Trait Tank Quede 21 th Quedi	8		a bottom cap wafer coupled to the measurement mass assembly
	9		including a bottom cap overshock bumper pattern designed to
7	10		reduce stiction within the sensor.
	1	7.	A metal electrode pattern for use in a sensor, comprising:
	2		a metal electrode including a stiction-reducing pattern.
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	1	8.	A method of creating a stiction-reducing metal electrode pattern for use
	2		within a sensor, comprising:
	8		etching a surface pattern onto a surface of the sensor;
	4		applying a metal layer to the surface of the sensor including the surface
	5		pattern; and
	6		molding the metal layer to create the stiction-reducing metal electrode
	7		pattern.

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1	9.	A method of creating a metal electrode pattern including reduced-
2		thickness recesses for reducing stiction between the metal electrode
3		pattern and overshock bumpers within an accelerometer, comprising:
4		creating a lower metal electrode pattern layer;
5		applying an upper metal electrode pattern layer on top of the lower
6		metal electrode pattern layer; and
7		selectively removing one or more portions of the upper metal electrode
8		pattern layer to create the reduced-thickness recesses and expose
9		the underlying lower metal electrode pattern layer within the
10		metal electrode pattern.
1	10.	A method of creating a metal electrode pattern including cavities for
2		reducing stiction between the metal electrode pattern and overshock
3		bumpers within an accelerometer, comprising:
4		creating a lower metal electrode pattern layer;
5		applying an upper metal electrode pattern layer on top of the lower
6		metal electrode pattern layer; and
7		selectively removing one or more portions of the upper metal electrode
8		pattern layer and the lower metal electrode pattern layer to
9		create the cavities within the metal electrode pattern.
1	11.	A method of creating a metal electrode pattern including reduced-
2		thickness recesses for reducing stiction between the metal electrode
3		pattern and overshock bumpers within an accelerometer, comprising:
4		creating a metal electrode pattern; and
5		selectively removing one or more portions of the metal electrode
6		pattern to create the reduced thickness recesses and expose
7		an underlying layer of the metal electrode pattern.
		lacksquare
1	12.	A method of creating a metal electrode pattern including cavities for
2		reducing stiction between the metal electrode pattern and overshock
3		bumpers within an accelerometer, comprising:





selectively removing one or more portions of the metal electrode

pattern to create the cavities.

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